Army Grooms Information Technology Managers

The first 12 graduates of the Army Knowledge Leaders (AKLeaders) program were recognized by LTG Steven W. Boutelle, Army Chief Information Officer (CIO)/G-6, Feb. 25 in Arlington, VA. All graduates now hold civil-service positions in Army information technology (IT).

The 2-year program includes four cycles of leadership training and developmental assignments at key Army locations. AKLeaders are first selected from a national pool of high-achievement university graduates and are outstanding scholars (3.45 grade point average or higher). They must be U.S. citizens and able to obtain secret clearances.

"The AKLeaders program is changing the paradigm on how the Army develops IT management professionals," said Boutelle. "We are cultivating a new cadre that demonstrates leadership, business acumen, management skills, knowledge sharing, peer relationships and a strong commitment to public service." The training program is aligned with the *Clinger-Cohen Act of 1996*, which requires government agencies to make sound IT investments and improve IT management and mission performance.

The CIO/G-6 is currently recruiting 12 to 15 AKLeaders for the Class of 2005, which begins in September 2005. For more information, contact Dr. Edward Fujimoto, **edward.fujimoto@hqda.army.mil**, (703) 604-2059.

Congratulations to the following AKLeaders program graduates, listed with the names of their organizations:

Class of 2002	**Organization**
Batelka, Daniel S.	CIO/G-6
Cassell, Joel W.	Army Information Technology Agency Integration Center
Henderson, Patricia A.	Network Enterprise Technology Command (NETCOM)
Houston, Sheila M.	NETCOM
Russell, Jerry H. Jr.	CIO/G-6
Sullivan, Tara M.	CIO/G-6

Class of 2001	**Organization**
Frank, Hortense D.	U.S. Army Corps of Engineers (USACE)
James, Lee A. III	Program Executive Office Enterprise Information Systems
Lindsay, Zachary A.	CIO/G-6
Nguyen, Loan H.	Headquarters Army Materiel Command (HQ AMC)
Rosado, Anabel	USACE
Yeung, Sze-Ka	HQ AMC

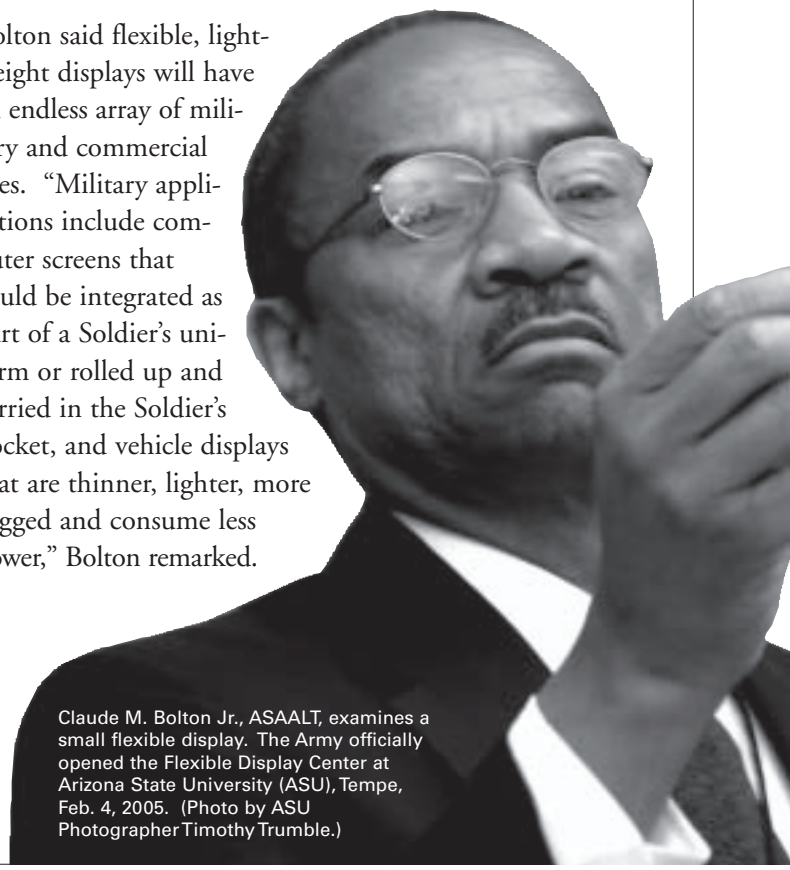
News Briefs

Army Opens Center to Research Flexible Computer Displays

MAJ Desiree Wineland

The Army officially opened a Flexible Display Center (FDC) at Arizona State University (ASU) Feb. 4, 2005, to develop thin computer screens that bend. Claude M. Bolton Jr., Assistant Secretary of the Army for Acquisition, Logistics and Technology (ASAALT), joined Arizona state and university officials for a ribbon-cutting ceremony at the new center.

Bolton said flexible, lightweight displays will have an endless array of military and commercial uses. "Military applications include computer screens that could be integrated as part of a Soldier's uniform or rolled up and carried in the Soldier's pocket, and vehicle displays that are thinner, lighter, more rugged and consume less power," Bolton remarked.



Claude M. Bolton Jr., ASAALT, examines a small flexible display. The Army officially opened the Flexible Display Center at Arizona State University (ASU), Tempe, Feb. 4, 2005. (Photo by ASU Photographer Timothy Trumble.)

The FDC is the result of a $43.7 million cooperative agreement between the U.S. Army Research Laboratory (ARL) and ASU. The agreement, signed in February 2004, has a performance period of 5 years with an option for an additional $50 million over an added 5-year period. Although the Army provides its core funding, the center's focus is on commercial applications. The Army is leading the effort because there is strong overlap between military needs and potential civilian markets.

The displays are extremely thin computer screens that will be integrated with computation, communications and global positioning subsystems, according to ARL Director John Miller, "to significantly enhance Soldiers' situational awareness, survivability and effectiveness."

Bolton called the development of the FDC a milestone. "The Army's Flexible Display Center, a unique collaboration of large and small businesses, the university and the Army, will provide our Soldiers and our Nation with revolutionary information technology capabilities," Bolton noted.

Bolton recalled the primitive displays used in cockpits when he served as an Air Force fighter pilot in Vietnam, saying he flew with computer displays that consisted of a flat glass panel. "All that is about to change," Bolton said, adding that maybe next year he'll be watching the Super Bowl on an FDC screen.

ASU President Michael Crow said that the new technology could improve situational awareness in the future for Soldiers. Crow added, "The FDC brings together academia, industry and government to develop what, in essence, will be revolutionary information portals — devices that are small, lightweight and rugged and consume very little power, but they will be very powerful in that they will hold the key to successful military operations — real-time information."

Rep. J.D. Hayworth, from Arizona's 5th Congressional District said the development of the FDC was about immediacy. "The FDC is about bringing the technology to the warfighter — now!" he said. "Whatever the war's duration, our mission is to ensure that we provide technology now to ensure freedom for the future."

BG(P) Roger Nadeau, Commanding General, U.S. Army Research, Development and Engineering Command, said his goal is to use technology to take care of Soldiers. "I need to provide them the best that money and technology can procure," he said. "Flexible displays are the next revolution in information technology that will enable lighter weight, lower power and more rugged systems for portable and vehicle applications."

Dignitaries cut the ribbon at ASU's new FDC. From left, MSG Mark Brzezinski; a Soldier modeling the current uniform; ASAALT Claude M. Bolton Jr.; Rep. J.D. Hayworth, Arizona 5th Congressional District; Michael Crow, ASU President; and Soldiers modeling the Army's newest and possible future uniform systems. (Photo by ASU Photographer Timothy Trumble.)

The flexible display technology will enable new applications for Soldier and Army platforms that cannot be realized with current glass-based displays. The new applications will include body-worn displays that conform to the uniform and displays that can be rolled up and put in a pocket when not in use and unrolled for large-area, high-information content. Army engineers and scientists are also considering many other potential applications.

FDC Director Dr. Gregory Raupp said the technology would ultimately be developed to the commercial level. "There are multiple technological challenges to making these devices fully flexible, lightweight and extremely low power, but we have the right university, industry and government team in place and we are confident we can meet those challenges," he said.

"The outstanding capabilities of our facility and its manufacturing research and development infrastructure will enable us to work side by side with our partners to intensively develop new breakthrough technologies," Raupp concluded.

MAJ Desiree Wineland is a Public Affairs Officer, Media Relations Division, Office of the Chief of Public Affairs.

Deputy Under Secretary of the Army Thanks ATC Employees for Their Dedication to Soldiers

Susan Hagan

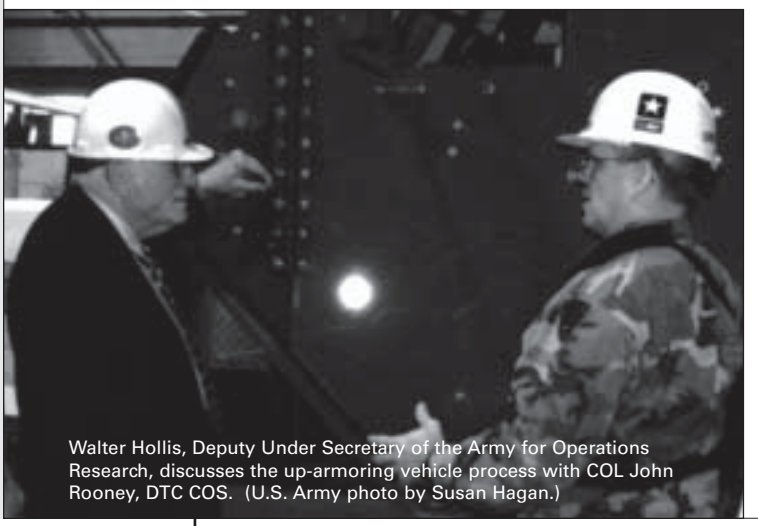
Deputy Under Secretary of the Army for Operations Research Walter W. Hollis thanked U.S. Army Aberdeen Test Center (ATC) employees Feb. 10, 2005, for their "dedication and service to the country and particularly to Soldiers."

ATC employees worked on the Stryker slat armor program and the up-armored vehicle program, often 24/7, to complete the jobs as quickly as possible to ship necessary equipment to the area of operations (AO).

"It's clear that you have dedicated yourselves to this work and that it's been done well," Hollis remarked. "The results speak for themselves, and we all appreciate very much what you do and thank you for it. I'm sure that if you found Soldiers in theater who benefited from your work, they would be more than pleased to shake your hand. This is a great team," Hollis continued.

The up-armor team, led by COL John Rooney, Developmental Test Command (DTC) Chief of Staff (COS), has evaluated 268 solutions from 53 vendors since August 2003. Both ballistic and automotive tests are conducted to ensure that the armor will protect Soldiers from hazards such as small-arms fire and improvised explosive devices, and that automotive impacts are minimized.

"This effort continues to be massive," Rooney explained. "We've received more solutions in the last 45 days than we've had over any other 45-day period."



Walter Hollis, Deputy Under Secretary of the Army for Operations Research, discusses the up-armoring vehicle process with COL John Rooney, DTC COS. (U.S. Army photo by Susan Hagan.)

Slat armor has been designed/ fabricated for all eight Stryker vehicle configurations. Every Stryker vehicle operating in the Iraqi/Afghan AO is equipped with slat armor. (U.S. Army photo by SGT Jeremiah Johnson, 55th Signal Co. (Combat Camera).)

According to Rooney, more than 12,000 Humvee Armor Survivability Kits have been manufactured and approximately 11,000 installed on vehicles. These kits, combined with other medium and heavy tactical wheeled vehicle kits and the up-armored Humvees being manufactured, mean that more than 26,000 vehicles in Iraq have good protection levels.

In June 2003, ATC, DTC, Program Manager Brigade Combat Team (BCT), Army Research Laboratory and General Dynamics began to pursue a prototype slat armor package to protect Strykers from rocket-propelled grenades (RPGs). In just 7 weeks, slat armor was designed, fabricated, installed and tested for eight Stryker vehicle configurations. Each configuration was designed with minimal impact to the vehicle's functioning. In some cases, improvements were made to the baseline vehicle.

ATC also worked in conjunction with Lima Army Tank Plant to fabricate slat armor for the 1st and 2nd Stryker BCTs and has completed production for the 3rd Stryker BCT.

"Every Stryker in theater is equipped with slat armor," said Charles Valz, ATC Survivability/Lethality Director. "Since the deployment of the Stryker Brigades to Iraq in November 2003, slat armor has saved many lives from daily RPG attacks."

Susan Hagan is a Mission Support Contractor Public Affairs Specialist for ATC.

Keller Named U.S. Army Military Tester of the Year

Nell M. Drumheller

MAJ(P) Winfield Keller (he has since been promoted to lieutenant colonel), Executive Officer (XO) for the Ronald Reagan Ballistic Missile Defense Test Site Range, Kwajalein Atoll, was recently named the U.S. Army Military Tester of the Year by the National Defense Industrial Association (NDIA). NDIA is a nonprofit organization whose mission is to provide a legal and ethical forum for the interchange of ideas between the government and industry to resolve industrial problems of joint concern.

"As a test director, I am responsible for cost, performance and schedule in support of a test," Keller explained. "The Reagan Test Site [RTS] team must conduct missions safely and on time, collect all required data and provide the data to our customer, all within budget."

Tests are categorized as follows:

- Developmental — verifying the system design meets desired capability.
- Operational — evaluating operational effectiveness and suitability of a system under realistic operational conditions.
- Live-Fire Testing — assessment of the vulnerability/lethality of a system prior to production.

In general, a tester can be anyone involved in testing a new system such as the test coordinator, data collector, evaluator or test subject. "I am fortunate to have been able to conduct both developmental and operational testing in previous assignments and at RTS," Keller remarked.

Then MAJ(P) Winfield Keller, RTS XO, Kwajalein Atoll, was selected as the U.S. Army Military Tester of the Year by the NDIA. Keller, who has been at RTS for 2 years, plans to stay there through summer 2006. (U.S. Army photo by Nell M. Drumheller, USAKA/KRS.)

"Keller possesses and continually demonstrates outstanding leadership, management and problem-solving skills," said LTC Anne Daugherty, Range Commander. "Keller is adept at understanding complex and interdependent test requirements, pulling together the right group of people to address those requirements, empowering the team to take action to meet requirements and then following up to ensure all issues have been addressed prior to mission execution. He constantly looks to see what issues could arise and takes early action to resolve or eliminate the potential for such problems to impact a test," Daugherty continued.

Keller believes that a qualified, motivated team is critical to a tester. "RTS has created integrated product teams supporting each mission area," Keller said. "Our ability to conduct tests would not be possible without people like Doug Peters and Merrie Beth Schad in Kwajalein Range Services (KRS) Plans and Operations, Claire Wittschiebe in KRS Logistics and other critical government, contractor and customer team members."

Daugherty agreed with Keller. "Tests are team events, not executed by any one person or group," she said. "Keller successfully coordinates with many diverse organizations, both internal and external to the command, to ensure timely test support. With the number of players involved in the kinds of tests we support at RTS, staying coordinated is a critical task. Keller enables communication within the team to ensure that when requirements change — and they always do — all test team members are aware and adjust their support and mission execution plans accordingly," Daugherty stated.

Recognizing the importance of the mission tests, Keller added, "From the U.S. Army Kwajalein Atoll (USAKA) Commander down, regardless of your particular job, ultimately, we are all here to conduct or support testing."

Keller's Army career has spanned more than 18 years and he advises junior officers that the secret to a successful career is to enjoy what you are doing. "Get challenging jobs you will like," Keller explained. "It's a lot easier to do a job well if you are having fun."

"At RTS, we serve the Army directly and DOD as well through the ballistic missile test support we provide other

services and DOD agencies," Daugherty explained. "It is very important work. Some RTS tests support improved capabilities for systems the Army either operates or will operate, including the Patriot and Ground-based MidCourse Defense systems. Other tests support performance assessment of ballistic missile systems the Air Force and Navy operate," she continued. "Since we fight as a Joint force, Navy and Air Force systems ultimately serve to protect and defend all warfighters, Army Soldiers included."

"RTS test directors help make the DOD's ballistic missile systems the best they can be, and as such it is truly an honor to serve here," Daugherty concluded.

Nell M. Drumheller is Editor of the Hourglass, USAKA/KRS.

Vice Chief Praises Tech Advances, Urges More

Ali Bettencourt

Army Vice Chief of Staff GEN Richard A. Cody

A lone Soldier kneeling in the mud of Mosul, Iraq, was projected onto a screen larger than life for more than 500 conference participants to see. What at first looked like an extension of the mountains behind him came into focus as a heap of equipment borne on the Soldier's back.

At the opening session of the February 2005 Association of the United States Army Winter Symposium in Orlando, FL, Army Vice Chief of Staff GEN Richard A. Cody asked the crowd why the photo, taken during the early days of *Operation Iraqi Freedom (OIF)*, doesn't represent what "right looks like" for Soldiers on today's battlefield.

"That Soldier will carry a 70-pound rucksack — he's a good infantryman," Cody said. "But 110 pounds? Is this Soldier equipped for agility against an adaptive enemy?" Pointing to the picture, Cody paused. "Never forget that he is your customer. Our job is to get this equipment right for our Soldiers," he added

Cody spoke during the opening session of the symposium titled, "Science and Technology (S&T) Enablers for a Joint and Expeditionary Army," to a crowd of officers and civilians, contractors and industry and academic partners. He outlined Army advances since the global war on terrorism (GWOT) began and the work that still needs to be done. "During World War II, the Nation was shocked and horrified by German U-boat attacks on Allied fleets," Cody said. "American ingenuity quickly found a solution with sonar and other technology. How will history judge our success against improvised explosive devices (IEDs), suicide bombers and other asymmetric threats?"

"This conflict calls for focus and intensity from the S&T communities," Cody continued. "As you look at [Soldiers' faces], ask yourself, 'are we giving them everything they need and are we getting it to them quickly enough?'"

Cody praised advancements made over the last 3 years. Specifically, he highlighted the comprehensive, Joint and rapid work done to combat IEDs through the Joint IED Defeat Task Force; the improved individual Soldier equipment provided through the Rapid Fielding Initiative; and the introduction of new technological solutions to the battlefield through the Rapid Equipping Force initiative.

"This is a different Army today," Cody said. "Our Soldiers aren't afraid of new technology — they embrace it. They want us to push the envelope. In fact, they challenge us to push it."

While visiting the Program Executive Office for Simulation, Training and Instrumentation (PEO STRI) in Orlando, Cody saw firsthand the cutting-edge work the Army is conducting in the live, virtual and constructive simulation training environments to help prepare Soldiers for combat.

Lockheed Martin and PEO STRI representatives demonstrated the new War Simulation (WARSIM) System — a computer-based simulation tool that supports brigade, Joint and coalition command- and staff-level training. WARSIM can simulate all levels of conflict — from a major theater of war to stability and support operations, providing commanders realistic, integrated and tough training.

"PEO STRI is a vital component to the Army's combat readiness," Cody commented. "These live, virtual and constructive simulation systems are helping to save lives in Iraq and Afghanistan."

While addressing a crowd of more than 200 PEO STRI employees, simulation personnel from the other services and

contractor and industry partners, Cody praised the community's hard work and key contributions to the GWOT.

"Do not judge your relevance to this fight by your proximity to the battlefield," Cody said. "You are absolutely vital to this effort and to our Soldiers. If one of our [*Operation Iraqi Freedom* veterans] could be here today, they would stand up and thank you."

Cody reminded the audiences that in the end, everything they do is for the Soldier — the Army's centerpiece. "All our Soldiers ask of us is great leadership, the right equipment and training. We can't let them down," he concluded.

Ali Bettencourt is a Public Affairs Specialist with the Office of the Army Chief of Public Affairs.

U.S. Military Academy and ERDC Sign Cooperation Agreement

The U.S. Military Academy (USMA), West Point, NY, and the U.S. Army Engineer Research and Development Center (ERDC), Vicksburg, MS, formally signed a memorandum of agreement Feb. 18, 2005, to promote joint research and information exchange opportunities between the two Army institutions. BG Daniel Kaufman, USMA Academic Board Dean, and Dr. James Houston, ERDC Director, both signed the agreement.

The agreement will provide for various official interactions between the two organizations, including opportunities for USMA faculty and cadets to work at various ERDC sites on joint research projects, and sabbatical opportunities for ERDC personnel to teach at USMA. The agreement will ultimately improve the visibility of ERDC and USMA research throughout the U.S. Army Corps of Engineers (USACE) and the Army as a whole.

Dr. James Houston, ERDC Director, and BG Daniel Kaufman, USMA Academic Board Dean, sign the cooperation agreement between ERDC and the USMA. (Photo courtesy of ERDC.)

Dr. Drew Miller (left), ERDC, explains a special fisheries study to BG Kaufman and other USMA faculty members during an ERDC overview tour. (Photo courtesy of ERDC.)

ERDC's Vicksburg installation has informally hosted USMA faculty and cadets for short-term research visits for several years. This agreement will formalize and expand future cooperative efforts between the two institutions.

Representatives from various USMA departments accompanied Kaufman during his 2-day visit to ERDC. They received briefings and presentations on ERDC research capabilities, facilities and ongoing projects.

During the signing ceremony, Kaufman described the agreement's significance. "At the U.S. Military Academy, we teach and prepare our cadets for a changing world. It's natural for us to have collaborative efforts for our professors and cadets to work with some of the world's leaders in research and development (R&D). This will give our cadets insight into ERDC research to solve problems for the Army and our Soldiers. Only at ERDC could you see everything from the latest Cray supercomputer to zebra mussels."

Houston mentioned previous cooperative interactions, including short-term faculty and cadet research visits; USMA alumni at ERDC; and ERDC researchers who have served as USMA faculty. He also pointed out that COL Allen Grum, USMA's Engineering Department head, had served as ERDC Director in 1985-86 while on sabbatical.

"This agreement will strengthen and promote future collaborative efforts and aid both organizations," Houston continued. "But the greatest benefit may be the increased exposure

of new technologies and research capabilities to the cadets — the Army's future leaders. We are proud to be in this partnership."

West Point was fortified in 1778 and is the oldest, continuously occupied military post in America. In 1802, legislation established it as an engineering school to train Army officers. Its mission is to educate, train and inspire cadets to become future Army leaders.

ERDC is the premier R&D facility for USACE. It consists of seven laboratories at four geographical sites, including Vicksburg; Champaign, IL; Alexandria, VA; and Hanover, NH. ERDC employs more than 1,800 workers, controls $1.2 billion in facilities and conducts an annual research program of approximately $700 million. It conducts research in both military and civil works mission areas for DOD and the Nation.

Army's Drive to Find Newest Technology Leads to YPG

Phillip T. Washburn

In a bold move to find and acquire the latest vehicle technology the automobile industry has to offer, the U.S. Army invited a group of vendors to Yuma Proving Ground (YPG), AZ, for a first-ever Tactical Wheeled Vehicle (TWV) Component Demonstration.

Representatives from 42 companies across the Nation made the trip to southwest Arizona early this year and showcased 62 technologies for the Army to consider. The demonstration was hosted by YPG and the Program Executive Office for Combat Support and Combat Service Support's (PEO CS&CSS's) Program Manager for Tactical Vehicles. This was part of the Army's Expedited Modernization Initiative Procedure Program, which is designed to identify and leverage key technologies for TWVs.

Don Kyle, representing Modine Manufacturing of Wisconsin, explains how a new air conditioning/heating system works as government observers take turns riding in the up-armored M1114 Humvee, driven by Louie Madrid, a YPG test driver. (U.S. Army photo by Phillip T. Washburn.)

Hosts of the multistage event deemed it a major success for the Army and industry, especially since it included a high percentage of smaller companies that usually don't get the opportunity to display their ideas and technologies directly to high-level decision makers. This was a unique attempt to identify what current industry technologies the Army could leverage in fielding its future fleet of TWVs, both in the short and long terms.

"This demonstration definitely exceeded our expectations for a first-year event," PEO CS&CSS BG Patrick J. O'Reilly remarked on the final day of demonstrations. "Observation teams saw some technologies from smaller companies they might not otherwise have seen. These technologies would have taken a long time to get to my level," O'Reilly explained, adding that his group was really pleased by some of the products they saw.

Drivers run vehicles through a tough test on a YPG course to demonstrate a new suspension system enhancement. (U.S. Army photo by Phillip T. Washburn.)

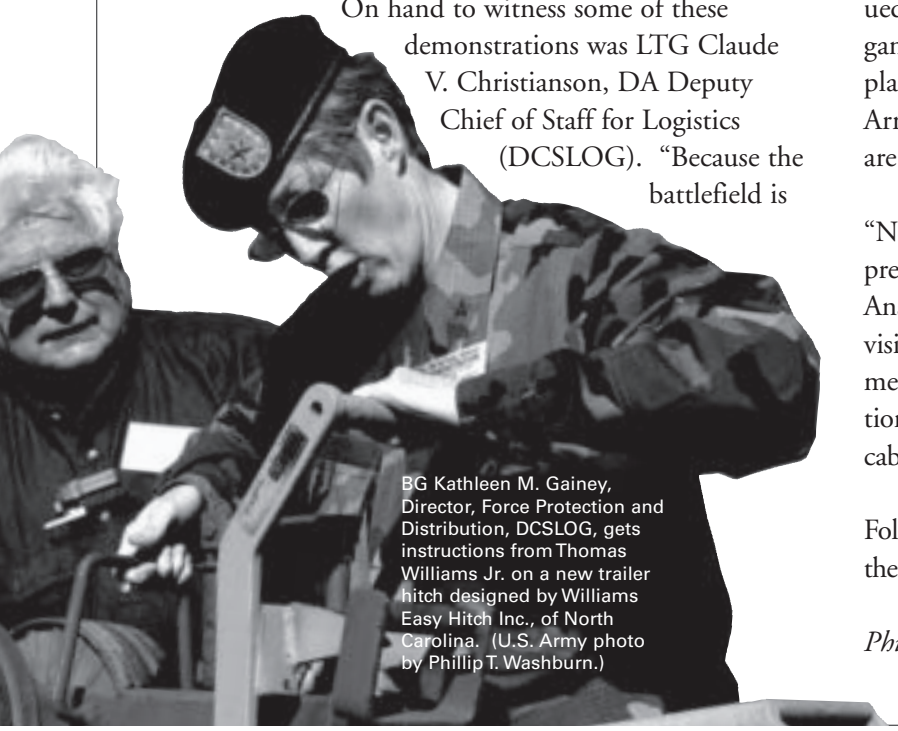
"This was not just a static display like we see in other venues," he continued. "We actually got to work the equipment and see it in action, which made the event tremendously more valuable for us. It was also definitely worthwhile coming to Yuma, not only because of the favorable weather and ranges, but also because YPG has an environment similar to where American Soldiers are currently engaged," he added.

Observation teams comprised representatives from different Army organizations involved in the modernization and acquisition of military systems. They carried clipboards, took notes, asked questions and were keenly focused on every aspect of the technologies presented.

During the 4-day process, O'Reilly joined other general officers in the hands-on and up-close assessments of various new technologies being displayed on YPG's roads and ranges.

At many courses, vehicles were raised and lowered by remote control and tires deflated and inflated automatically. One truck chased another around the range displaying a collision alarm system. A Wisconsin business gave demonstration rides in a new air-conditioned Humvee. A large trailer hitch, designed to be faster and easier to operate, drew a crowd for the North Carolina company that designed it. A Texas firm presented an engine coolant designed to last for 750,000 miles or 7 years. One Michigan company bounced suspension demonstration trucks around the ranges and another displayed a new oil-saving device.

On hand to witness some of these demonstrations was LTG Claude V. Christianson, DA Deputy Chief of Staff for Logistics (DCSLOG). "Because the battlefield is changing, the Army's truck fleet must meet new requirements," Christianson explained. "Force protection for the crew and passengers must be a first consideration. The crew must have network communications capability. The cost to operate these vehicles has to be reduced, and Army TWVs must be easier to maintain," he said.



BG Kathleen M. Gainey, Director, Force Protection and Distribution, DCSLOG, gets instructions from Thomas Williams Jr. on a new trailer hitch designed by Williams Easy Hitch Inc., of North Carolina. (U.S. Army photo by Phillip T. Washburn.)

BG Patrick J. O'Reilly, PEO CS&CSS, observes a demonstration of a trailer hitch designed by Williams Easy Hitch Inc. Mark Wilkins provides the demo. (U.S. Army photo by Phillip T. Washburn.)

Other executive-level leaders included BG Kathleen M. Gainey, DCSLOG's Director of Force Protection and Distribution, and MG William M. Lenaers, Commanding General U.S. Army Tank-automotive and Armaments Command, who took a first-hand look at the variety of potential TWV technologies.

Because this event was a demonstration, not a source selection or test, it allowed involvement, not just data collection. "One of the great things about this event," O'Reilly continued, "was that it allowed representatives of many Army organizations involved in the process to come together, in one place, simultaneously to learn what industry has to offer the Army. We were so pleased with this demonstration that we are seriously considering doing it every year."

"Nearly 100 of YPG's personnel supported this event, with preparations beginning weeks in advance," remarked Zack El Ansari, Division Chief, Combat and Automotive Systems Division. YPG provided everything the vendors and government team needed, including ranges, vehicles, instrumentation, audiovisual support, computers, escorts, transportation, cables, Internet access and registration," El Ansari concluded.

Following the event, the observation teams produced reports for the Army and provided feedback to the industry participants.

Phillip T. Washburn is a Public Affairs Specialist at YPG.

Need for Hardening Vehicles Continues in Kuwait

MSG Hak Haskins

The 276th Maintenance Co.'s goal was to up-armor 300 vehicles in one day before the close of business Feb. 4, 2005. That single-day total wasn't going to set the benchmark for production — it was just another day's work.

Earlier this year, the 276th and its companion company up-armored 6,600 vehicles during a 1-month period in a production system that 276th Maintenance Co. Chief Warrant Officer Randal Joeckel called "an Army factory." That "factory-type" production has been taking place in Kuwait since December and was a major reason for an immediate decrease of 2,000 in the expected number of vehicles needed for *Operation Iraqi Freedom (OIF)*.

Units Meet Surge, Improve Design

The factory adhered to a strict production schedule and a daily inventory of armored parts. It improved the design of some armor pieces — including stronger hinges — and some of those changes have allowed the gaining units to install panels with bolts, instead of a welding torch.

"We have too many units coming here," said SSG Robert E. Cruz, the noncommissioned officer in charge of the 276th's production schedule. "I don't have time to weld [all the parts] so we came out with a new model. Even drivers from units who are waiting for up-armor are handed wrenches and put to work," Cruz remarked. "Also, units that need 10 or more vehicles upgraded must provide a working party."

SPC Christian Mena, 276th Maintenance Co., Army Readiness Command, Kuwait, fabricates up-armor for Army vehicles headed to Iraq. (U.S. Army photo by Curt Cashour.)

Welders Keep Torches Hot

To remain efficient "we have to keep our welding rods and cutting torches hot," said MAJ John Murillo, 158th Combat Support Battalion Support Operations Officer. In less than 3 months the three companies involved in up-armor work in theater — the 175th, 276th and 699th maintenance companies — used 12 tons of welding rods and 124,000 hardened bolts to fashion $27 million worth of ballistic steel sheets into doors and panels to help keep Soldiers safer while on convoy missions.

Joeckel stated that his 10-Soldier allied trades shop gained an additional 10 to 20 Soldiers almost immediately and as many as 86 Soldiers were working the mission at its height.

The 276th, an Army Reserve unit from Juana Diaz, Puerto Rico, took over the 699th's mission in mid-January. More than half the unit's personnel were machinists, welders and inventory yard workers. "We canvassed the unit for machinists and wrecker operators, and trained them all to be metal workers in a couple of weeks," Joeckel said. "Then came the 'big push' to get all the vehicles up-armored. We haven't denied a vehicle yet that was headed north. I can't say enough of my Soldiers."

Navy Sends Hull Techs to Help

Even with Army machinists and welders working around the clock, they couldn't keep up with the demand, and five Kuwaiti machine shops were contracted to help out. Then the Navy stepped in to help. A volunteer crew of 15 hull technicians arrived in late January and was put to work immediately after undergoing Joeckel's cross-training program. Seaman Apprentice Brett Jones came to Kuwait from the USS Emory S. Land, a submarine tender stationed in Italy, to assist the Army in up-armoring vehicles. "We have a lot of work to do out here, more than we thought," Jones said. "We've been working our tails off, and we're enjoying it."

When the Navy was asked to provide a crew to help its Army counterparts, it wasn't short on volunteers, said LTJG Chris O'Leary, the crew's Officer in Charge. The 15 slots were quickly filled. "We thought this was a great opportunity and we took it," said O'Leary.

Sailors Do a Ship-Shape Job

"We don't have any Humvees, but we do structural work and the welding is not much different than on ships," O'Leary said. "The 276th has a process and they showed it to us. We picked it up fast."

The Navy's impact was felt immediately when a senior chief petty officer made a suggestion for modifying one of the steel panels used for larger trucks. It was a design change that found its way into the template and has been used since. The Navy hull technicians also came with an advantage. "We're treating them like a brigade welding team even though they will only be here 45 to 60 days," Murillo said.

PO2 Roddey Zinda, a Hull Technician with 4 years of U.S. Navy service, said he volunteered because "it's a respected job, it's my trade and I know I am good at it. It makes sense to help if I can."

Officers Get Their Hands Dirty Too

All crew members work 24-hour shifts, including O'Leary, whose face was streaked with sweat and spent-welding-rod soot. "When you see the officer and the senior chief working with the crew, it boosts morale," Zinda said, "and shows us how important this is." That sentiment was echoed through the ranks.

PO3 Jessica Curtis said, "In Kuwait, you get to see a lot of your work and where it is going. This may help save many lives and it has a great sense of importance."

Types of Armor

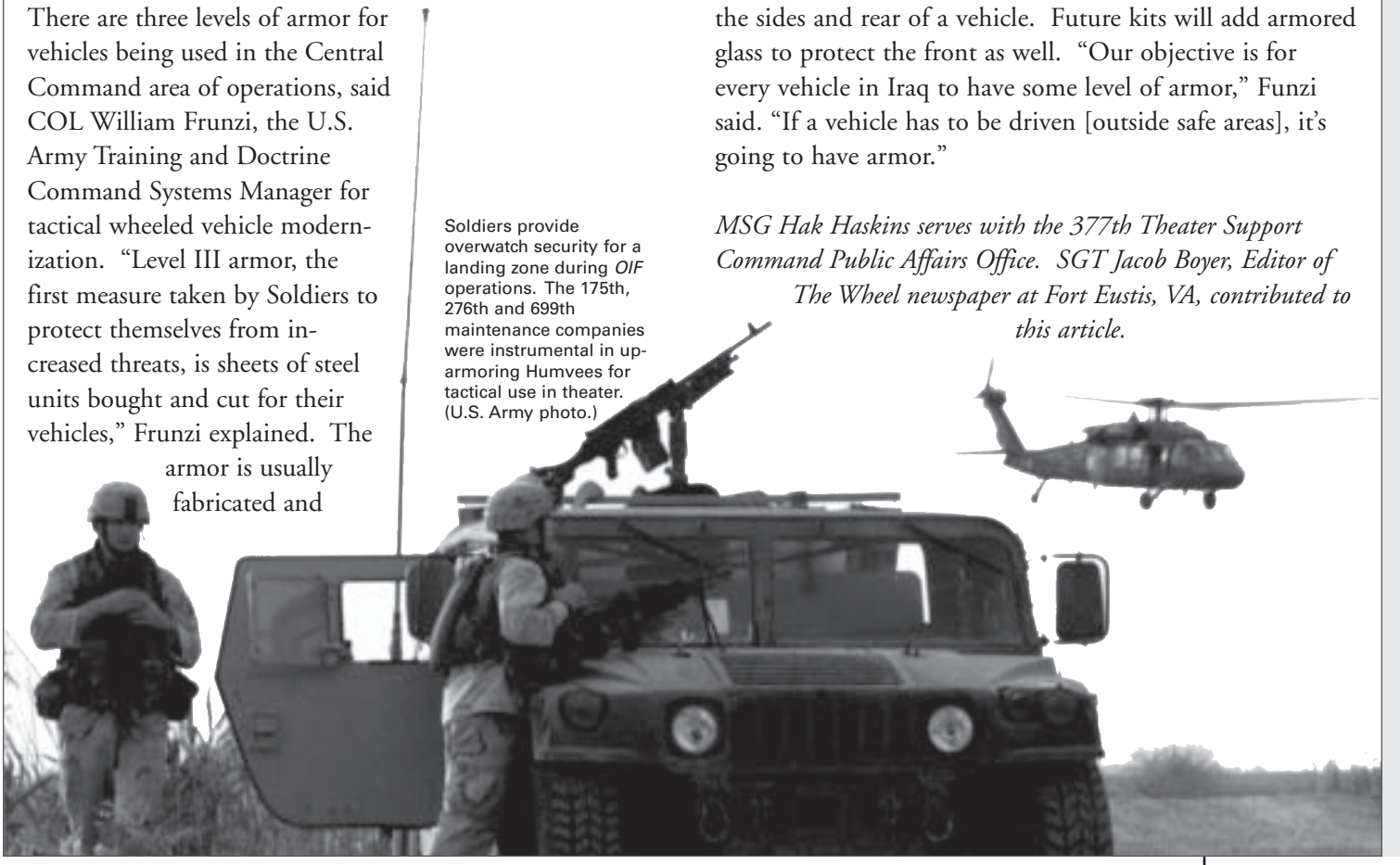
There are three levels of armor for vehicles being used in the Central Command area of operations, said COL William Frunzi, the U.S. Army Training and Doctrine Command Systems Manager for tactical wheeled vehicle modernization. "Level III armor, the first measure taken by Soldiers to protect themselves from increased threats, is sheets of steel units bought and cut for their vehicles," Frunzi explained. The armor is usually fabricated and applied in Kuwait. The biggest concern with Level III armor is whether the steel is up to the task being asked of it.

"Steel 'coupons' — sample squares of the steel — are sent to a test center at Aberdeen Proving Ground, MD, where scientists put them through a series of tests to determine their ballistic qualities," Frunzi continued. "The intent is to test and certify the steel. We want to make sure it's good. Level III armor typically protects the sides and rear of the vehicle and is a step up from what Soldiers in the field previously had," Frunzi remarked.

Both Level I and Level II up-armoring occurs at factories in the United States. The former consists of the up-armored Humvee. There were a small number of these vehicles in theater at the onset of *OIF*, but most of them were assigned to military police units for security operations. Level I armor adds protection all around the crew compartment and provides both glass and armament protection.

Humvees are not the only tactical wheeled vehicles being used in Iraq, and not all of them can be replaced by their up-armored cousins. Level II armor, which consists of manufactured add-on kits, is attached to vehicles either at home stations before units deploy or once the vehicles arrive in Kuwait. Like Level III armor, Level II kits protect the sides and rear of a vehicle. Future kits will add armored glass to protect the front as well. "Our objective is for every vehicle in Iraq to have some level of armor," Funzi said. "If a vehicle has to be driven [outside safe areas], it's going to have armor."

MSG Hak Haskins serves with the 377th Theater Support Command Public Affairs Office. SGT Jacob Boyer, Editor of The Wheel newspaper at Fort Eustis, VA, contributed to this article.



Soldiers provide overwatch security for a landing zone during *OIF* operations. The 175th, 276th and 699th maintenance companies were instrumental in up-armoring Humvees for tactical use in theater. (U.S. Army photo.)